

WHAT WORKS

Maker Spaces and the Learning Commons

David V. Loertscher

In the 1960s, when school libraries were being transformed into multimedia centers, we not only transformed the collections to include phonograph records, sound filmstrips, and 8-mm silent loop films, but there was also a major trend to create a corner of the library for make and take.

Here kids made hand-drawn transparencies, posters, and used 35-mm cameras to create slide shows, and they experimented with large video cameras if the school could afford them—sometimes there was even a sound studio for doing the morning show for the school. At the district level, make-and-take workshop areas were very popular. It was once said that if the rate of lamination at these centers continued to grow, the elementary teachers of America would have laminated the world and everything in it. And we certainly served those teachers by allowing them to make overheads on our fancy 3M machines, and those purple dittos almost made us stagger back to our rooms (you have to be very old to get that).

Hopefully, a half-century later, particularly in the new Learning Commons, there are still those make-and-take areas, but now those spaces are both physical and virtual. Kids use inexpensive cameras/cell phones to create videos, do mash-ups, build models, create dazzling presentations, turn their projects into digital formats and their posters in Glogster. This part of the Learning Commons crosses the barrier between pure academics and informal learning. And the service brings in a chunk of kids who are attracted to advanced technologies that we offer. It is the place to create, build, construct, do, and express all kinds of both personal and collaborative products.

Is there such a space in your library/Learning Commons? In our various visits across North America, we have seen two in operation: one in an Edgewood middle school in Toronto known as the Science Experience Center (see the article in *Teacher Librarian* at: _____) and one at the board (district) level in Calgary, Canada.

In the United States and elsewhere, there is new interest and excitement in Makerspaces. These are places where design and entrepreneurial ideas are allowed and where serious technology and

construction equipment are available in a place dedicated to play (meaning to make, construct, tinker, experiment, invent, and create).

We quote here on a press release from EdSurge about a recent tour of such places in California:

On Monday, Sept. 10, 2012 at the picturesque College of San Mateo, Makerspace (<http://makerspace.com/>), Linda Kekelis of Techbridge stated,

Today, Techbridge kicked off its launch in sixteen schools in California. (Lucky kids!) (<https://www.edsurge.com/n/makerspace-event-helps-kick-off-u-s-department-of-education-bus-tour-across-america>) Exhibits of Arduinos, LEDs, circuits, robotics, and other geeky goodies lent the space a true Maker-esque aura. A squadron of Department of Ed officials (in spiffy-fitting suits) arrived to celebrate the occasion. Both sides participated on stage (and amongst the crowd) in a lively discussion on how Maker activities mesh with the Department's grander pursuits of STEM and Common Core goals. Undersecretary Martha Kanter, first on the mic, set the tone for what is needed to make this happen: "We have to move from an engine of bureaucracy to an engine of innovation."

Karen Cator, Casey Shea (teacher at Analy high school), AnnMarie Thomas (Executive Director, Maker Education Initiative), and Paul Heckman (Professor and Associate Dean, School of Education, UC Davis) chimed in on a lively discussion, moderated by EdSurge's Betsy on issues such as the research and pedagogy behind Making and learning, support for teachers, and how this all relates to tests and Common Core.

You can view the panel at <http://www.youtube.com/watch?v=1LWbYChyvaQ&feature=youtu.be>.

Four middle school students got the last word. They are makers, declared one, "because it's not boring." Figuring out answers—rather than regurgitating the "right" response—keeps them coming back for more, said Riley Lewis.

Knowing that this event was happening, I sent my great graduate assistant, Jennifer Gulassa, and here is an excerpt from her report:

The room was a buzz of activity, men in suits were wrapped up in engaging conversations with t-shirt wearing teens, and surrounding the perimeter were maker tables demonstrating some of the hands-on activities created in Maker Spaces all over California. There were homemade 3D printers, robots drawing kaleidoscope patterns on poster paper on the floor, cardboard laser-cut models of a skull or a skateboard ramp, and makers enthusiastically presenting their process or the kit they created to share with other potential makers.

Dougherty, MAKE Magazine and Maker Faire publisher and inventor and now general manager of the Maker Media division of O'Reilly Media, Inc., gave an inspirational speech that concentrated on the learner. "Every child is a maker." He said that the maker kit will be the new textbook. Folks across the state and country are creating kits that teach various concepts via hands-on projects. The kits, many of which were displayed around the room

during this conference, come complete with directions, examples, tools, and materials, as well as expertise you will need to lead this project in the classroom. It is project-based learning in the most literal sense. He also said that a maker is someone who is interdisciplinary, who shares using open sources, has the desire to visualize her/his physical world and create.

Finally, Saul Griffin, of Otherlab, made a beautifully illustrated graphic presentation of the maker process. Otherlab is the creator of Howtoons, comics that show


kids how to make things (<http://projects.otherlab.com/>). He talked about how some makers/learners have used the Autodesk CAD tool, which is offered free to educators to problem-solve. Each student can be inspired to learn if they create their own questions and are then given the tools they need to find the answers, Griffin explained. He described reaching out to a skateboarder and asking him/her what would make skating better. The student came up with the concept of getting more air, and this developed into designing a better ramp. The

student used Autodesk to design a ramp, and the program created cardboard cut-outs and patterns for the maker/learner to cut or pop out and glue together into a small scale 3D model so that they can actually test their theories before potentially moving on to the full-scale wooden ramp. The program also has the ability to show the math involved in the different curves, so students have the ability to troubleshoot and tweak while still designing virtually in Autodesk and learn the math in a concrete way besides.

The physical and digital nature of these spaces as discussed was reminiscent of the Learning Commons, though most of the Maker physical spaces are a lot messier than the library as it is right now. Many of the examples Dougherty and the pilot schools shared were outbuildings literally built for these projects where there could be saw dust, metal and paper scraps, glue, and table saws, as well as modern tools like laser-cutters, computer-controlled milling machines, 3D printers, CAD software ready to use to produce student creations, or CAM (computer aided manufacture). These modern tech tools allow for an iterative design process that was not available ten years ago. It feels like these Makerspaces are the cousin of the Learning Commons, but there is great potential for inspirational "family gatherings," so to speak, where the Learning Commons and the Makerspaces could come together and help one another.

Even the American Library Association is getting into the act, with a series of webinars (if you are lucky enough to be reading this article before Nov. 19, 2012) at <http://ala-publishing.informz.net/InformzDataService/OnlineVersion/Individual?mailingInstanceId=2637595&subscribeId=1026764064>. The reason they are interested is because of the success of such a space in the Chicago Public Library.

So, what's our point? As teacher librarians we can embrace new and innovative ideas or allow them to grow up around us, excluding us, ignoring us, or we can embrace, join, encourage, and move to the center of both serious academics and the exciting movements in disruptive education. It's our time, folks.




















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